

Southern Lepidopterists'
Society
and
**ASSOCIATION FOR
TROPICAL LEPIDOPTERA**
2014 Annual Meeting



Celebrating the 10th anniversary of the

McGuire Center for Lepidoptera and Biodiversity

Florida Museum of Natural History, University of Florida,
Gainesville, Florida
26 – 28 September 2014

Front Cover: female *Megathymus cofaqui slotteni* from Levy County, Florida. Collected as a pupa in March, 2014, by Andrew D. Warren.

In addition to hosting the combined meetings of the Southern Lepidopterists' Society and the Association for Tropical Lepidoptera, we are also celebrating the 10-year anniversary of the McGuire Center for Lepidoptera and Biodiversity. Since the official opening of the Center in August, 2004, the collection holdings, including immatures, have risen from about 4 million specimens to over 10 million as a result of targeted world-wide field expeditions by staff, students, and donors, including 100 active research associates in addition to an average of 40 public and private donations each year. New advances in molecular genetics, new biogeographic and analytical methods and other research approaches have refined our knowledge of the incredible biodiversity that exists in the more than 20,000 butterfly species and an estimated 245,000 species of moths that have evolved to be such a successful group and also serve as a prominent environmental indicator species. In just 10 years, we have achieved the status of having one of the largest research training centers with extensive educational programs for advanced studies on Lepidoptera. We trust that you will join us in celebrating our accomplishments as we look forward to new challenges and opportunities during the decades ahead. This is an open invitation for you to visit the McGuire Center regularly and continue to help us achieve these goals with your interest, involvement, and support!

Sincerely,

A handwritten signature in black ink that reads "Thomas C. Emmel". The signature is written in a cursive style with a large, stylized initial 'T'.

Dr. Thomas C. Emmel
Founding Director



**FALL MEETING OF THE SOUTHERN
LEPIDOPTERISTS' SOCIETY AND THE
ASSOCIATION FOR TROPICAL
LEPIDOPTERA
SEPTEMBER 26-28, 2014**

McGuire Center for Lepidoptera and Biodiversity Conference Room, Florida
Museum of Natural History, University of Florida, Gainesville, Florida

Local Arrangements

Meeting Coordinators:

Jacqueline Y. Miller, Deborah L. Matthews, Nancy C. Turner

Organizing Committee: Charles V. Covell, Jr., Jaret Daniels,
Christine Eliazar, Peter Eliazar, Thomas C. Emmel, Lary Reeves,
Deborah L. Matthews, Jacqueline Y. Miller, Tom Neal, Denise Tan,
Nancy C. Turner

Banquet/Lunch:

Tom Neal, Jacqueline Y. Miller, Nancy C. Turner

Field Trip Coordinators:

Charles V. Covell, Jr. & Lary Reeves

Group Photograph & ATL Photo Contest:

Andrei Sourakov

Collection Access:

Andrew D. Warren & Andrei Sourakov

Program:

Deborah L. Matthews, Jacqueline Y. Miller, Christine Eliazar

Technical Support:

James B. Schlachta, Craig Segebarth

Evening Program Coordinator:

Thomas C. Emmel

Registration:

Elena Ortiz, Emma Roulette, Nancy C. Turner



Schedule of Events

Friday, September 26

2:00 – 5:00 p.m.: **Registration**, Powell Hall Classroom (watch for signs in lobby), Florida Museum of Natural History, UF Cultural Plaza, University of Florida.

Field trip participants must sign a release form.

8:00 a.m – 4:30 p.m.: **Day collecting field trip**. Participants will meet the field trip coordinator in the Florida Department of Agriculture and Consumer Services Doyle Conner Building (1911 SW 34th St., Gainesville) parking lot (north side). We plan to leave the parking lot by 8:30 am and will head back to Gainesville around 3:00 pm. Contact Lary Reeves (lereeves@ufl.edu, 352-514-2794) for updates on meeting time and transportation. A variety of habitats, including flatwoods, maritime hammocks, swamps, and salt marshes are available to explore. Please be prepared to carpool or provide your own transportation, food, beverages, special equipment, and insect repellent as needed.

6:00 p.m.: **Night Collecting**, Charlie Covell will be leading the evening moth trip and has made arrangements with the rangers at Paynes Prairie. Members attending should be prepared to pick up a quick dinner (neither food nor drinks will be provided) and drive out to Paynes Prairie Preserve State Park located 10 miles south of Gainesville, in Micanopy, on the east side of US 441. You may meet Charlie in the North Hilton Hotel parking lot at 6:00 pm if you wish to caravan or carpool to the Park or meet at the Park visitor center parking lot at 6:30. We plan to be out of the park by midnight. Please contact Charlie if you would like to participate (352-273-2023; ccovell@flmnh.ufl.edu). Please remember to bring your mosquito repellent along with flashlight/headlamp and other collecting gear.

Saturday, September 27

Please follow the signs and enter the McGuire Center through the north staircase entrance.

8:00 – 8:45: **Registration** and reception.

MORNING SESSION

Moderator: Peter Eliazar

8:50 **Opening remarks**: Thomas C. Emmel, Charles V. Covell, Jr.

9:00 – 9:20: **Maria F. Checa**

“Butterfly farming: a successful approach to achieve conservation and development in Western Ecuador”

9:25 – 9:45: **Andrew D. Warren**

“Deception on a web: chemical mimicry of saturniid sex pheromones by *Argiope* spiders (Araneidae)”

9:50 – 10:10: **Marianne Espeland & Naomi Pierce**

“Phylogeny and biogeography of the Riodinidae”

10:15 – 10:35: BREAK

10:40 – 11:00: **Jaret Daniels & Marc Minno**,
 “Update on the status and conservation of *Heraclides aristodemus ponceanus* in South Florida”

11:05 – 11:25: **Nicholas Homziak**
 “Next-generation sequencing to help resolve relationships in the Erebiinae (Lepidoptera: Erebiidae)”

11:30 – 11:50: **James E. Hayden**
 “New Florida crambid records”

11:55 – 12:15: **Christi Jaeger**
 “Moth Photographers Group: recent developments and future undertakings”

12:20 **Group Photo**, McGuire Center outside steps

12:25 – 1:25: **Lunch** at McGuire Center (courtesy of the Neal family Subway).

AFTERNOON SESSION

Moderator: Jaret Daniels

1:30 – 1:50: **James K. Adams & Peter Van Zandt**
 “*Dinumma deponens* (Erebidae: Scoliopteryginae) in the U.S.: the continuing saga”

1:55 – 2:15: **Pablo Sebastián Padrón**
 “Preliminary molecular phylogeny of the genus *Catasticta*”

2:20 – 2:40: **Brian G. Scholtens & M. Alma Solis**
 “Updating the North American checklist of Pyraloidea”

2:45 – 3:05: **Keith Willmott**
 “The role of the Andes in the diversification of Neotropical butterflies: vicariance or dispersal?”

3:10 - 3:30: BREAK

3:35 - 3:55: **Peter A. Van Zandt, Sarah Martin, Grant Williams, William Hemminger, Grant Gentry, and Benjamin Hunt**

“What’s an Urban Heat Island, and do moths even care?”

4:00 – 4:20: **Jeffrey R. Slotten**

“*Schinia scissa* versus *Schinia scissoides*; mystery solved”

4:25 – 4:55: **John Pickering**

“Monitoring moth communities as indicators of environmental health and changes”

5:00 – 5:30: **Business Meeting**, Southern Lepidopterists’ Society

5:30 – 6:30: **Social Hour**, Central Gallery, Powell Hall. Free Butterfly Rainforest admission with meeting name badge.

EVENING EVENTS

6:30: **Banquet**, Central Gallery, Powell Hall Classroom, Florida Museum of Natural History.

Commemorative Address – Thomas C. Emmel

Video presentation – Lincoln Brower

Lepidoptera Crossword Challenge – David Plotkin

Prizes & Awards – Andrei Sourakov & Charles V. Covell, Jr.



Sunday, September 28

8:00 – 8:40: **Morning reception**, McGuire Center Conference Room

MORNING SESSION

Moderator: Denise Tan

8:45 – 9:05: **Jade Aster Badon**

“Butterflies of the Philippines: The conservation and preservation of habitats from anthropogenic factors”

9:10 – 9:30: **Bob Belmont**

“Arthropod biodiversity study at the Central Florida Zoo”

9:35 – 9:55: **Charles V. Covell Jr.**,

“An update on the Paynes Prairie Preserve State Park moth survey”

10:00 – 10:20: **Break**

10:25 – 10:45: **Marc C. Minno**

“Status of *Strymon acis bartrami* and *Anaea troglodyta floridalis* in Florida”

10:50 – 11:10: **Andrei Sourakov**

“Two heads are better than one: how hairstreaks escape attacks by jumping spiders”

11:15 – 11:35: **Peter R. Houlihan**

“Ecological monitoring, conservation, and ecotourism potential in the rainforests of Borneo”

11:40 – 12:00: **Delano S. Lewis & Shinichi Nakahara**

“*Papilio (Heraclides) hyppason* Cramer, 1775 (Lepidoptera: Papilionidae): systematic placement and record from the Orinoco Delta”

12:05 – 12:35 **Business Meeting**, Association for Tropical
Lepidoptera

Posters

**Francesca V. Ponce, Jesse W. Breinholt, Thomas Rossie,
Jesse R. Barber, Daniel Janzen, Winnie Hallwachs, and
Akito Y. Kawahara**

“Molecular phylogeny, phylogeography, and anti-predatory
eyespot evolution in *Eumorpha* caterpillars (Lepidoptera:
Sphingidae)”

**Deborah L. Matthews, Jacqueline Y. Miller, Roger W.
Portell, James K. Toomey & Terry A. Lott**

“Preliminary observations of moth diversity at the Guantanamo
Bay Naval Base, Cuba”

Abstracts

Adams, James K.¹ & Peter Van Zandt,¹ Department of Natural
Science, Dalton State College, Dalton, GA 30720, (jadams
@daltonstate.edu); ²Department of Biology, Birmingham-
Southern College, Birmingham, AL 35254.

“*Dinumma deponens* (Erebidae: Scoliopteryginae) in the U.S.:
the continuing saga”

Dinumma deponens was first discovered in the U.S. in June of
2012, in very northern Georgia. In July of that same year a
specimen was also taken in the Birmingham, Alabama area.
Since that time, it has been taken in five states total (Georgia,
Alabama, Tennessee, North and South Carolina), and in virtually
every warm month in the southeast (February, and April through
September). The larvae of this moth feed on *Albizia* (*Mimosa*)
and the moth may therefore spread through much of the
southeast. Here we report on the records so far and comment on
the possible number of broods.

Badon, Jade Aster, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611-2710 (jaabadon@gmail.com).

“Butterflies of the Philippines: The conservation and preservation of habitats from anthropogenic factors”

The Philippines is experiencing massive habitat loss through deforestation and anthropogenic factors. The results of this study showed significant effects of anthropogenic land use on the distribution of butterflies in Negros Oriental, Philippines. The preservation of the remaining habitats (lake shores, riverbanks and forests areas) is important to prevent further loss of (endemic) species. Butterfly awareness through social media played an important part in educating the local people to participate in butterfly conservation in the country.

Belmont, Bob, 212 Sweet Gum Way, Longwood, FL 32779 (rbelmont@massyservices.com).

“Arthropod biodiversity study at the Central Florida Zoo”

In 2010, the "Year of Biodiversity", a study began at the Central Florida Zoo and Botanical Gardens in Sanford, Florida to create a collection of the arthropods on the Zoo grounds for public viewing and participation. Over 5,000 different species of insects have been collected already. Unidentified Lepidoptera from this collection will be on display for those who might be able to name one or two. Although dozens of different collecting methods have been utilized, the collection is really in its infancy. Eventually, "indicator species" will be selected for a long-term phenology study that will help elementary through high school students learn more about how climatic conditions affect the abundance of different arthropods.

Checa, Maria F., McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611-2710, 2QCAZ Museum of

Invertebrates, Pontifical Catholic University of Ecuador. Quito, Ecuador (mcheca@ufl.edu).

“Butterfly farming: a successful approach to achieve conservation and development in Western Ecuador”

Sustainable development is urgently required in Western Ecuador, where 70% of people are poor and less than 5% of forests remain. Butterfly farming consists of rearing butterflies in captivity and marketing them to local or international exhibitions. Butterfly farming has been economically successful in increasing livelihood opportunities for local people and promoting conservation. Ecuador has a great potential to develop this type of project due to its tremendous butterfly diversity. Here, I addressed a main constraint to establish a butterfly exhibition in Western Ecuador: the lack of biological knowledge of butterfly species. The methodology used consisted of sampling butterflies using traps through a monitoring scheme set up since 2010 at the Lalo Loor Dry Forest Reserve, and rearing butterfly species. A list of potential species to be included in a butterfly farming project was obtained, along with natural history information for several species.

Covell, Charles V., Jr., McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL, 32611-2710 (ccovell@flmnh.ufl.edu).

“An update on the Paynes Prairie Preserve State Park moth survey”

Since its beginning in June, 2007 under the supervision of the late George Austin, the survey of moth species in the Paynes Prairie Preserve State Park has continued with the help of staff, students and amateur lepidopterists associated with the McGuire Center for Lepidoptera and Biodiversity. As of the end of 2013 757 species have been recorded in 96 nights of collection and observation of moths in several Prairie locations. Further collections are needed, and a backlog of specimens must be

identified, to provide a closer approximation to the moth fauna of Paynes Prairie.

Daniels, Jaret¹ & Marc Minno, ¹McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, P. O. Box 112710, Gainesville, FL, 32611-2710, (jdaniels@flmnh.ufl.edu).

“Update on the status and conservation of *Heraclides aristodemus ponceanus* in South Florida”

Schaus’ Swallowtail (*Heraclides aristodemus ponceanus*) is a federally endangered south Florida butterfly. Historically it occurred in tropical hardwood hammocks from south Miami to Lower Matecumbe Key. However, the butterfly’s overall geographic range and population numbers have been severely reduced over past decades. Today it is limited entirely to Biscayne National Park and several conservation land areas on northern Key Largo. In 2010, the Imperiled Butterflies of Florida Workgroup targeted the renewal of intensive annual population monitoring efforts as a top priority action to determine the taxon’s current status and range-wide occupancy. Resulting collaborative surveys over the past four years revealed extremely depressed population numbers and triggered the initiation of more aggressive conservation efforts.

Espeland, Marianne¹ & Naomi Pierce², ¹McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611-2710, ²Department of Organismic and Evolutionary Biology, 26 Oxford Street, Harvard University, Cambridge MA 02138

“Phylogeny and biogeography of the Riodinidae”

We present the first dated higher level molecular phylogeny and biogeographical inference of the butterfly family Riodinidae. The approximately 1500 species have a world-wide distribution, but more than 90% are found in the Neotropics. The 120 or so Old World species are concentrated in Southeast Asia with only a few species in other regions. Classification within this family

based on morphology has been difficult and many genera are currently not even assigned to tribes, or only tentatively so. Using 3367 bp from one mitochondrial and four nuclear markers for each of 123 taxa representing all subfamilies, tribes and subtribes and 96 out of 145 genera as well as outgroups, we find that Riodinidae split from Lycaenidae about 96 Mya in the late Cretaceous. The family is recovered as monophyletic and most likely originated in the Neotropics. Neither Euselasiinae nor Nemeobiinae are monophyletic as currently circumscribed. Within the Riodininae, our inferred relationships also differ from the currently accepted morphological hypothesis. We find that Eurybiini is sister to the rest of the subfamily followed by Mesosemiini, and only a single of the current riodinid subtribes is monophyletic. The historical biogeography of the family turns out to be difficult to infer with current methods, and this is especially the case for the enigmatic monotypic genera *Styx* and *Corrachia*.

Hayden, James E., Florida State Collection of Arthropods, FDACS, Division of Plant Industry, PO Box 147100, Gainesville, FL 32614-7100 (James.Hayden@freshfromflorida.com).

“New Florida crambid records”

I highlight new, questionable, and otherwise interesting distribution records for crambid moths in Florida, with a focus on Crambinae (grass moths). The detection of Mexican rice borer (*Eoreuma loftini*) in Florida instigated a review of the fauna based on a little fieldwork and a lot of dissection in the FSCA/MGCL collection. Tropical species have shown up, but some of the most interesting records are of northern species, with implications for biogeography. Grasslands and sandhills in the northern and coastal parts of the state need to be collected more intensively, and collecting with bait and other non-standard methods is encouraged.

Homziak, Nicholas, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611-2710

“Next-generation sequencing to help resolve relationships in the Erebinæ (Lepidoptera: Erebidæ)”

The Noctuoidea is one of the most diverse superfamilies within the order Lepidoptera, possessing a wide diversity of behavioral and physiological traits. Recent phylogenetic studies, informed by molecular data, revealed many previously unrecognized relationships within the group, and led to many changes in the classification of the noctuid families. Within the Noctuoidea, one of the more diverse subfamilies is the Erebinæ, one of 18 moderately to well-supported subfamilies within the family Erebidæ. However, many phylogenetic relationships within the Erebinæ and other erebid subfamilies remain poorly resolved. In order to resolve these portions of the erebine phylogeny, this project aims to use two next-generation sequencing methods, anchored hybrid enrichment and transcriptomics, to obtain large quantities of genes for phylogenetic analysis.

Houlihan, Peter R., Department of Biology, 619 Carr Hall, University of Florida, Gainesville, FL 32611
(phoulihan@ufl.edu)

“Ecological monitoring, conservation, and ecotourism potential in the rainforests of Borneo”

The island of Borneo is well known as a biodiversity hotspot. However, habitat degradation continues unabated at a faster rate than that of scientific discovery and conservation efforts. While we are still far from fully understanding Borneo’s diversity, results from several multi-year studies provide greater insight into the spatial and temporal trends driving fluctuations in abundances. Comprehending these shifts in community ecology is imperative as the land and climate on Borneo and throughout the entire world, are changing rapidly. In this context, I will discuss my work on Borneo over the years and how ongoing research is being utilized to inform conservation practices and environmental policy. I will also discuss several new possibilities for conservation in Indonesian Borneo, particularly including ecotourism.

Jaeger, Christi, Mississippi Entomological Museum, 100 Old Hwy 12, Clay Lyle Entomology Bldg. Mississippi State, MS 39762 (cjaeger@entomology.msstate.edu)

“Moth Photographers Group: recent developments and future undertakings”

The Moth Photographers Group is the most visited webpage hosted by Mississippi State University. Robert Patterson conceptualized MPG in 2004, and until recent health issues, he has been the site’s most dedicated contributor. This will be a presentation of the website’s conceptualization, statistics, and future undertakings. Current strategies to maintain the website, including new features, such as species pages and sort-by-state functions will be discussed.

Lewis, Delano S.¹ & Shinichi Nakahara², ¹Office of Research and Grants, Northern Caribbean University, Manchester Road, Mandeville, Jamaica, WI; ²McGuire Center for Lepidoptera & Biodiversity/Powell Hall, Florida Museum of Natural History, University of Florida, 3215 Hull Road, PO Box 112710, Gainesville FL, 32611-2710 (snakahara@ufl.edu)

“*Papilio (Heraclides) hyppason* Cramer, 1775 (Lepidoptera: Papilionidae): Systematic placement and record from the Orinoco Delta”

Papilio (Heraclides) hyppason Cramer, 1775 is a unique member of *Heraclides* and has been recently recorded from the eco-region of the Orinoco swamp forests in northeastern Venezuela, a zoologically poorly known biogeographic region. Previous records of this species from this eco-region date back to more than 50 years ago from only three specimens, but these records are not specific and it is impossible to determine exactly where they were collected. We will discuss its systematic placement among the *Heraclides*, as a recent phylogenetic tree suggests this species to be the most basal of the clade formed by *P. cresphontes*, *P. thoas*, *P. machaonides*, *P. andraemon*, and *P. aristor*. Therefore, we confirm earlier suspicions that *P.*

hyppason should be removed from the “*anchisiades* group” of species, which is supported from early stage biology as well.

Matthews, Deborah L.¹, Jacqueline Y. Miller¹, Roger W. Portell², James K. Toomey² & Terry A. Lott³, ¹McGuire Center for Lepidoptera and Biodiversity and ²Division of Invertebrate Paleontology, Florida Museum of Natural History, University of Florida, Gainesville, FL, USA, 32611-2710, ³Dickinson Hall, Florida Museum of Natural History, University of Florida, P. O. Box 117800, Gainesville, FL 32611 USA (dlott@flmnh.ufl.edu).

“Preliminary observations of moth diversity at the Guantanamo Bay Naval Base, Cuba”

An inventory of the lepidopteran fauna of the Guantanamo Bay Naval Base has thus far included two sampling periods, 18-25 January 2012 and 3-10 October 2013. The naval base covers a 120 km² area in an arid region of southeastern Cuba. Sampling included habitats on the windward side of the bay, the most distant sites within 10 km of each other. Moths were collected at a sheet illuminated by two 160 watt self-ballasted mercury vapor bulbs set up at a different site each night (per trip). In addition, limited samples were acquired nightly at high intensity lights at a recreation facility. Up to about 20 individuals were collected representing each morphospecies per night. We present an update on inventory progress and results including species richness by family, overall species accumulation for the base, and a comparison of the various habitats sampled.

Minno, Marc C., 600 NW 35th Terrace, Gainesville, FL 32607(marcminno@gmail.com)

“Status of *Strymon acis bartrami* and *Anaea troglodyta floridalis* in Florida”

Bartram’s Scrub-Hairstreak and the Florida Leafwing have been declining in southern Florida. The US Fish and Wildlife Service will list these butterflies as Endangered in September, 2014. Bartram’s Scrub-Hairstreak is currently found on Big Pine Key

in very low abundance. It is also found in Everglades National Park and a few conservation lands in Miami-Dade County. The Florida Leafwing is currently only known to occur in Everglades National Park.

Padrón, Pablo Sebastián, ¹McGuire Center for Lepidoptera and Biodiversity Florida Museum of Natural History, University of Florida, Gainesville, FL, USA, 32611-2710; Department of Entomology and Nematology, University of Florida, Gainesville, FL 32611-0675(pablospadron@ufl.edu).

“Preliminary molecular phylogeny of the genus *Catantix*”

The tropical Andes are renowned for their high biodiversity and endemism, but despite this fact, there are many genera that remain poorly studied, even among better known groups like butterflies. This research project produced the first molecular phylogeny for one of the largest Andean butterfly radiations, the genus *Catantix* Butler, 1870, with 96 species, and employed that phylogeny to investigate critical questions about how evolution has proceeded in this important but poorly studied group of animals. DNA sequences for one mitochondrial (COI) and three nuclear (EF-1 α , CAD and GAPDH) genes were generated for 188 specimens, representing 78 *Catantix* species. These sequences were used to reconstruct a phylogenetic hypothesis of species relationships. Then, this phylogeny was used to test several hypotheses about the timing of diversification, ancestral area reconstruction, and reconstruction of ancestral character states. This research sheds new light on the origin and diversification of *Catantix*, and highlights the need for revision of the genus, where new taxonomic rearrangement based on the molecular phylogeny has to be done.

Pickering, John, Discover Life and the University of Georgia
http://www.discoverlife.org/who/Pickering,_John.html

“Monitoring moth communities as indicators of environmental health and changes”

Discover Life's Mothing project's scientific objectives are to understand how weather patterns, urbanization, latitude, and other factors affect moth communities. Since 2010, participants have photographed over 400,000 insects at 19 study sites in the eastern United States and UGA Costa Rica, documenting nightly differences in the seasonal activity and abundance of over 2,900 moth species across years and sites. Novel results show how body size of a species can change between generations and years; how smaller moths are relatively less active than larger moths at colder temperatures, and how moths with larvae that feed on lichens may be more detrimentally affected by urbanization than other species. Mothing's educational objective is to involve the public in all aspects of the project from hypothesis generation, data collection, identification, analysis, and presentation of results. As part of this we are developing Moth Math to teach students how to analyze real-time moth data. In partnership with the Moth Photographers Group that provided 40,000 diagnostic photographs, Discover Life now provides online identification guides to 12,000 moth species customized by U.S. state or by Canadian province or territory. We plan to build similar guides for Central and South America. For details see <http://www.discoverlife.org/moth> . Please join us. We need your expert help!

Ponce, Francesca V, Jesse W. Breinholt, Thomas Rossie, Jesse R. Barber, Daniel Janzen, Winnie Hallwachs, and Akito Y. Kawahara, Florida Museum of Natural History, 3215 Hull Road, Powell Hall, Gainesville, FL, 3261, (francescavponce@ufl.edu)

“Molecular phylogeny, phylogeography, and anti-predatory eyespot evolution in *Eumorpha* caterpillars (Lepidoptera: Sphingidae)”

Many animals possess conspicuous external circular markings, or "eyespot". Eyespots typically function to startle or otherwise deter predators, and are thought to have evolved primarily in response to natural selection. However, surprisingly few studies have examined how eyespots have evolved. We study the evolution of the posterior larval eyespot in the charismatic New

World hawkmoth genus *Eumorpha*. While *Eumorpha* has a range of posterior larval eyespot shapes and sizes, little is known of how this trait has changed over time because phylogenetic relationships and phylogeography of the genus remains unknown. In this study, we sampled 59 individuals from 23 *Eumorpha* species, and sequenced four genes (CAD, EF-1 α , Wingless and COI), totaling 3,789 base pairs. Maximum likelihood and Bayesian phylogenetic methods produced largely congruent trees, many relationships of which had robust branch support. Our analyses reveal that *Eumorpha* had an ancestor with a posterior larval eyespot and that the eyespot was subsequently lost in at least three lineages. *Eumorpha* appears to have originated in South America and shifted its distribution northward to Central and North America. We found little correlation between the presence or absence of the larval eyespot and geographic distribution, which might indicate that *Eumorpha* larvae have found alternate adaptations that are equally effective against visual predators.

Scholtens, Brian G.¹ and M. Alma Solis², Department of Biology, College of Charleston, Charleston, SC 29424 (ScholtensB@cofc.edu), ²SEL, USDA, Smithsonian Institution, P.O. Box 37012, National Museum Natural History, E-517, MRC 168, Washington, DC 20013-7012, (alma.solis@ars.usda.gov).

“Updating the North American checklist of Pyraloidea”

We are in the process of updating the North American checklist of Pyraloidea (families Crambidae and Pyralidae). The most recent previous list was published in 1983 (known as the MONA list), and there have been numerous new descriptions, new introductions and new finds of southern species since that time. Our current working list totals about 1500 species of Pyraloidea and we are projecting to submit the list this fall for publication.

Slotten, Jeffrey R., 5421 NW 69th Lane, Gainesville, FL 32653(slotten@bellsouth.net).

“*Schinia scissa* versus *Schinia scissoides*; mystery solved”

Nothing has been published on the life history of *Schinia scissa*. At one point it was thought that *scissa* was a possible spring emerging form of *Schinia scissoides* which flies in the fall months. Life history notes and photos will be presented for the first time. Both species are found in Florida and use entirely different host plants as larvae. A third species, *Schinia spinosae* (*subspinosa*), will be mentioned. All are moths belonging to the subfamily Heliiothinae, genus *Schinia*.

Sourakov, Andrei, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611-2710
(asourakov@flmnh.ufl.edu).

“Two heads are better than one: how hairstreaks escape attacks by jumping spiders”

The ability to deflect predator’s attack from vital organs to the wing margin is regarded as an important adaptation in hairstreak butterflies. However, the experimental evidence of the effectiveness of “false head” pattern is limited. Present study tested the “false head” hypothesis by exposing a Red-banded hairstreak butterfly, *Calycopis cecrops*, which is quite common in south-eastern United States, to the attacks of the jumping spider, *Phidippus pulcherrimus*. The results indicated that the “false head” is an efficient strategy in deflecting attacks from the vital centers of the hairstreak butterfly whereas other similar-sized Lepidoptera fall easy prey.

Van Zandt, Peter A.¹, Sarah Martin², Grant Williams¹, William Hemminger³, Grant Gentry⁴, and Benjamin Hunt¹,
¹Birmingham-Southern College, Birmingham, AL 35254,
²University of Florida, Gainesville, FL, ³Elon University, Elon, NC, ⁴Samford University, Birmingham, AL
(pvanzand@bsc.edu)

“What’s an Urban Heat Island, and do moths even care?”

Many studies have shown that higher temperatures often correspond with advancing phenology in a number of species. Most of these studies use historical data to correlate temperature and phenological changes. We substituted space for time to determine if urban heat islands (UHI) produce a temperature change large enough to advance moth phenology. We evaluated our prediction using several focal species found at three sites along an urban to rural gradient that differed in temperature by about 1-1.5°C. Over the three years of this study, several species emerged earlier at the urban site compared to the most rural location, suggesting that some moth species respond to this temperature difference. However, the responses to abiotic changes tended to vary among species.

Warren, Andrew D., McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL, USA, 32611-2710, (andy@butterflies of america.com).

“Deception on a web: chemical mimicry of saturniid sex pheromones by *Argiope* spiders (Araneidae)”

Despite anecdotal literature reports of male saturniid moths being attracted to *Argiope* spiders, the phenomenon has never been studied in detail. In June-July 2013, in Gainesville, Florida, I studied male *Anisota pellucida* attracted to *Argiope aurantia*; over 130 male *A. pellucida* were documented as food items or intercepted as they flew into the spider webs. In June 2014, *A. aurantia* were again found to attract *A. pellucida* in Gainesville, so the spiders were taken to Colorado and Utah for field trials with various *Hemileuca* species. Of four *Hemileuca* species encountered between July 12 and August 15, three were attracted to the spiders; *H. eglanterina* (mildly attracted), *H. hera* and *H. magnifica* (both very strongly attracted). Video highlights of field studies will be presented.

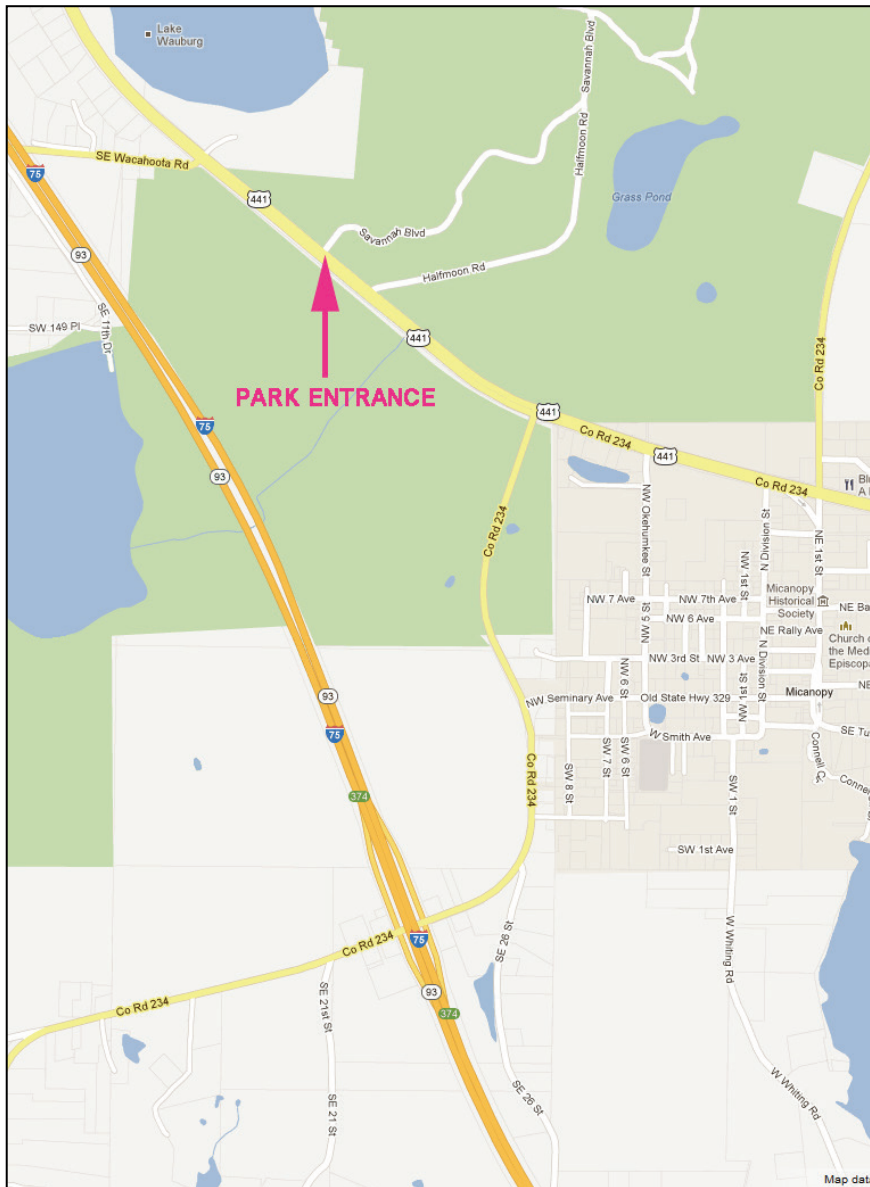
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“The role of the Andes in the diversification of Neotropical butterflies: vicariance or dispersal?”

The Andes mountain range is perhaps the most significant biogeographic divide in the world's most biodiverse region, the Neotropics. However, whether Andean faunas evolved contemporaneously with Andean uplift, or diversified into pre-existing montane habitats, remains unclear. We used mtDNA divergence between individuals of 61 butterfly species or sister-species pairs from opposite Andean slopes in Ecuador as an estimate for divergence time. We tested whether there was a negative correlation between DNA divergence and elevation, as expected if the Andes isolated pre-existing species, and examined a variety of evolutionary and ecological traits which might explain deviation away from the expected relationship. Despite an overall decline in divergence with elevation, a significant amount of variation remained unaccounted for. We discuss limitations in the data and methods used, and alternative possible biogeographic scenarios.



Payne's Prairie State Park



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NOTES